AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A power supply system for a pulse discharge system, the power supply system comprising:

an input connection to a main power supply;

an output connection to a capacitor for storing energy to be delivered to the pulse discharge system;

a switching mechanism coupled between the input connection and the output connection, the switching mechanism having a first configuration for coupling the output connection to the main power supply, and a second configuration for decoupling the output connection from the main power supply, the switching mechanism including: (i) a first switch connected in series between the main power supply and an inductor; (ii) a second switch connected in series between the inductor and the capacitor; and, (iii) a third switch connected in parallel to the series combination of the first switch and the inductor;

a sensor for monitoring a characteristic representative of a voltage across the capacitor;

a controller, responsive to the voltage across the capacitor, for controlling the switching mechanism in switching between the first and the second configuration; and,

a keep-up supply, responsive to the voltage across the capacitor, and to the controller, the keep-up supply for delivering energy to the capacitor to maintain the voltage at a predetermined driving voltage.

2. (Original) A power supply system according to claim 1, wherein the switching mechanism includes an inductor arranged for storing energy when the switching mechanism